

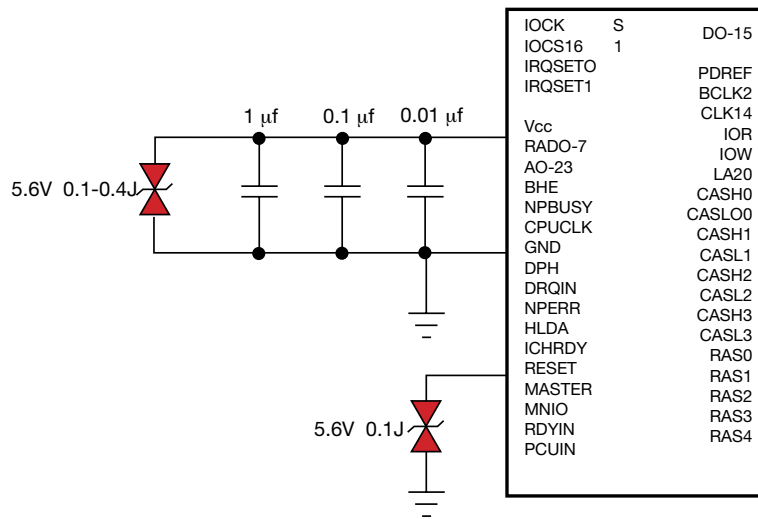
# **AVX**TransGuard<sup>®</sup>

## TYPICAL CIRCUITS REQUIRING PROTECTION

The following applications and schematic diagrams show where TransGuards might be used to suppress various transient voltages:

- ASIC Reset & Vcc Protection
- Micro Controllers, Relays, DC Motors
- I/O Port Protection
- Keyboard Protection
- Modem Protection
- Sensor Protection
- Preamplifier Protection
- Audio Circuit Protection
- LCD Protection
- Optics Protection

### ASIC RESET & V<sub>CC</sub> PROTECTION

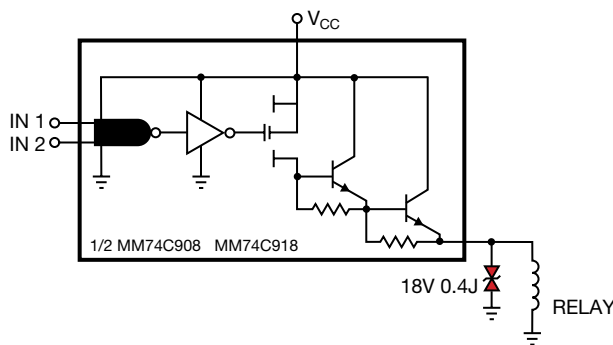


### MICRO CONTROLLERS RELAYS, DC MOTORS

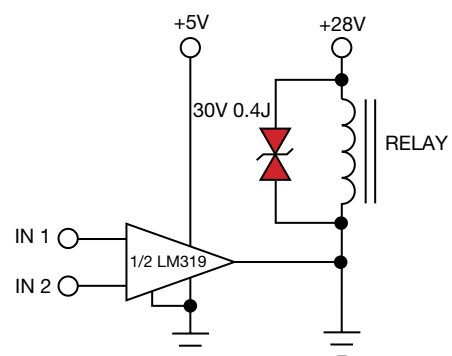
#### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE ≥ RELAY OR MOTOR VOLTAGE  
 ENERGY RATING TYPICALLY > 0.3J  
 CAPACITANCE IS OF NO CONCERN

#### CMOS RELAY DRIVER



#### LM319 RELAY DRIVER



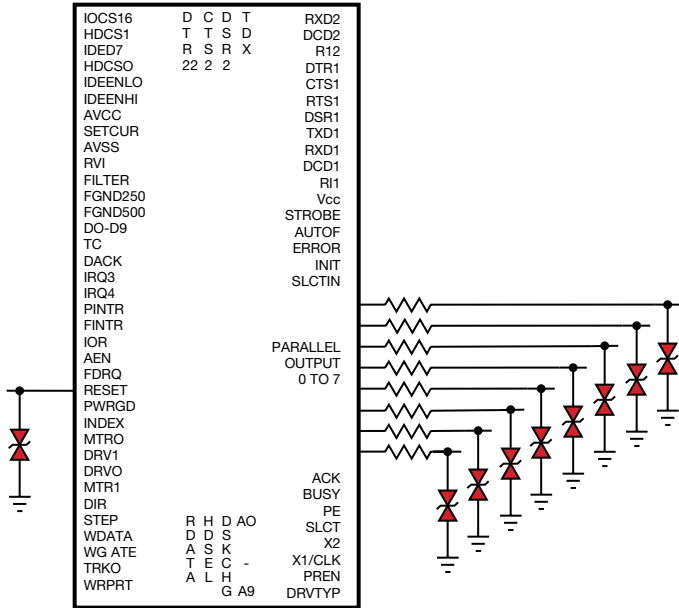
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## I/O PORT PROTECTION

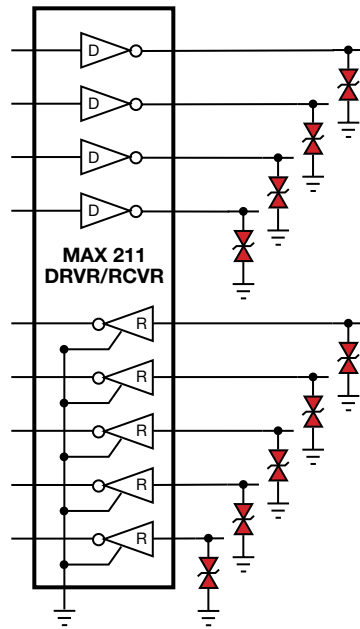
### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE TYPICALLY 14V - 18V  
 ENERGY RATING TYPICALLY 0.05J - 0.1J  
 CAPACITANCE SHOULD BE MINIMIZED

#### SUB NOTEBOOK & PDA'S



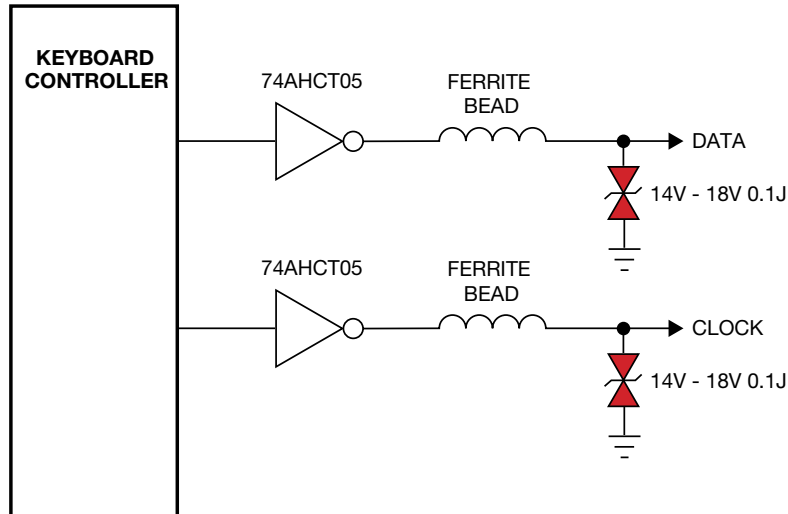
#### NOTEBOOK & WORK STATION



## KEYBOARD PROTECTION

### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE >5.6V  
 ENERGY RATING TYPICALLY <0.4J  
 CAPACITANCE PREFERRED TO BE MINIMUM

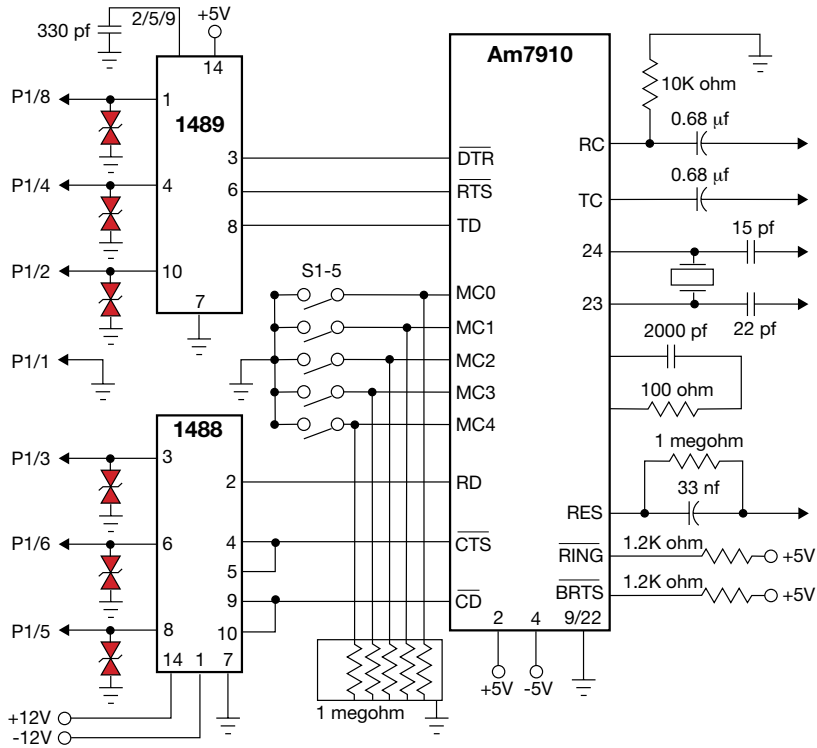


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### MODEM PROTECTION

#### TRANSGUARD CHARACTERISTICS

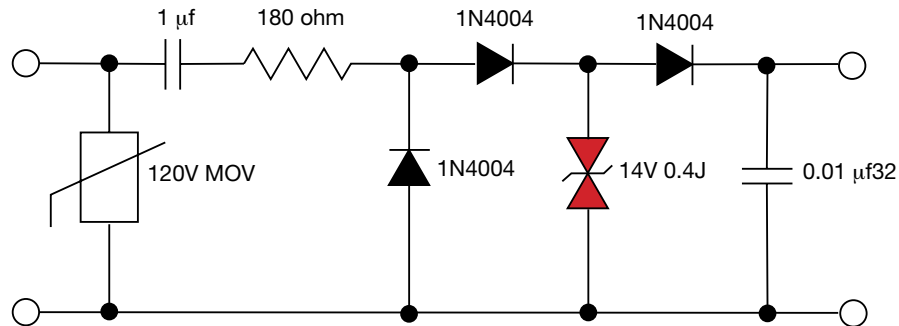
WORKING VOLTAGE <26V  
ENERGY RATING ≥ 0.1J



### SENSOR PROTECTION

#### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE TYPICALLY >14V  
ENERGY RATING > 0.4J  
CAPACITANCE IS NO CONCERN



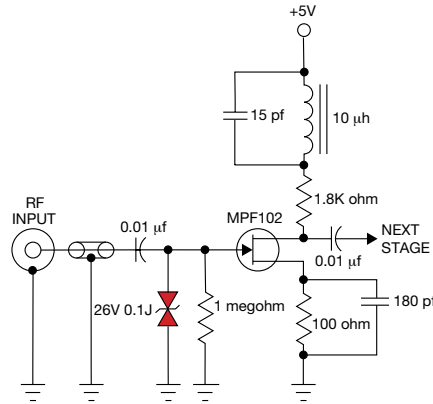
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## ANTENNA AND PREAMPLIFIER PROTECTION

### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE TYPICALLY 18V - 26V  
 ENERGY RATING 0.05J - 0.9J  
 CAPACITANCE OF CONCERN ON MANY DESIGNS

#### PREAMPLIFIER PROTECTION

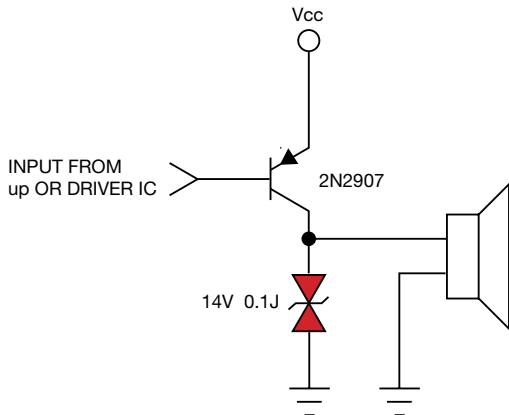


## AUDIO CIRCUIT PROTECTION

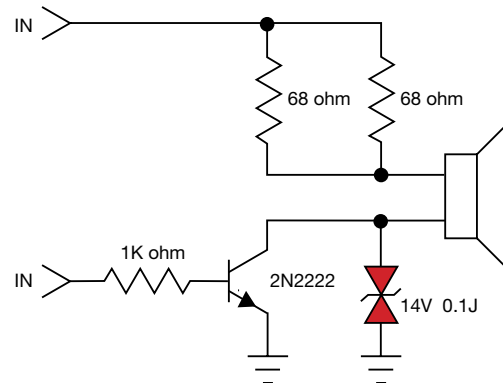
### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE TYPICALLY 14V - 18V  
 ENERGY RATING 0.1J

#### PAGER AUDIO PROTECTION



#### NOTEBOOK, WORK STATION AUDIO PROTECTION

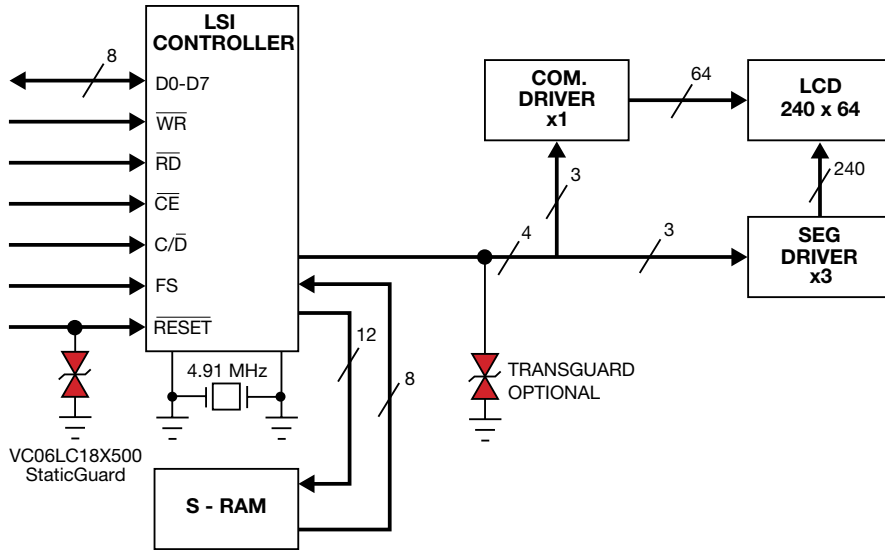


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### LCD PROTECTION

#### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE < 5.6V  
ENERGY RATING < 0.1J

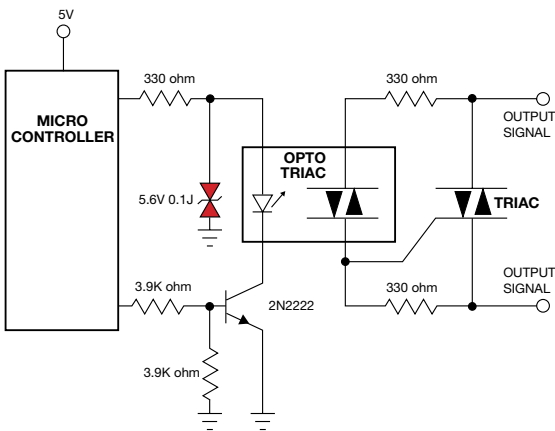


### OPTICS PROTECTION

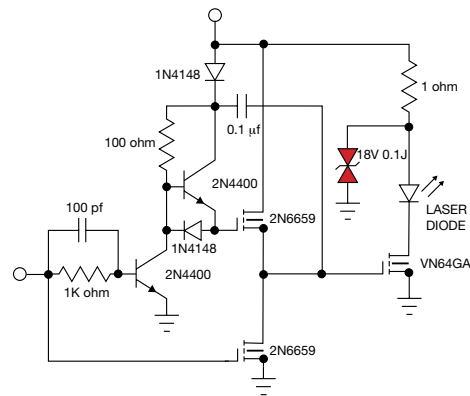
#### TRANSGUARD CHARACTERISTICS

WORKING VOLTAGE ≤ 18V  
ENERGY RATING 0.1J  
CAPACITANCE SHOULD BE MINIMIZED

#### OPTO ISOLATER PROTECTION



#### LASER DIODE PROTECTION



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